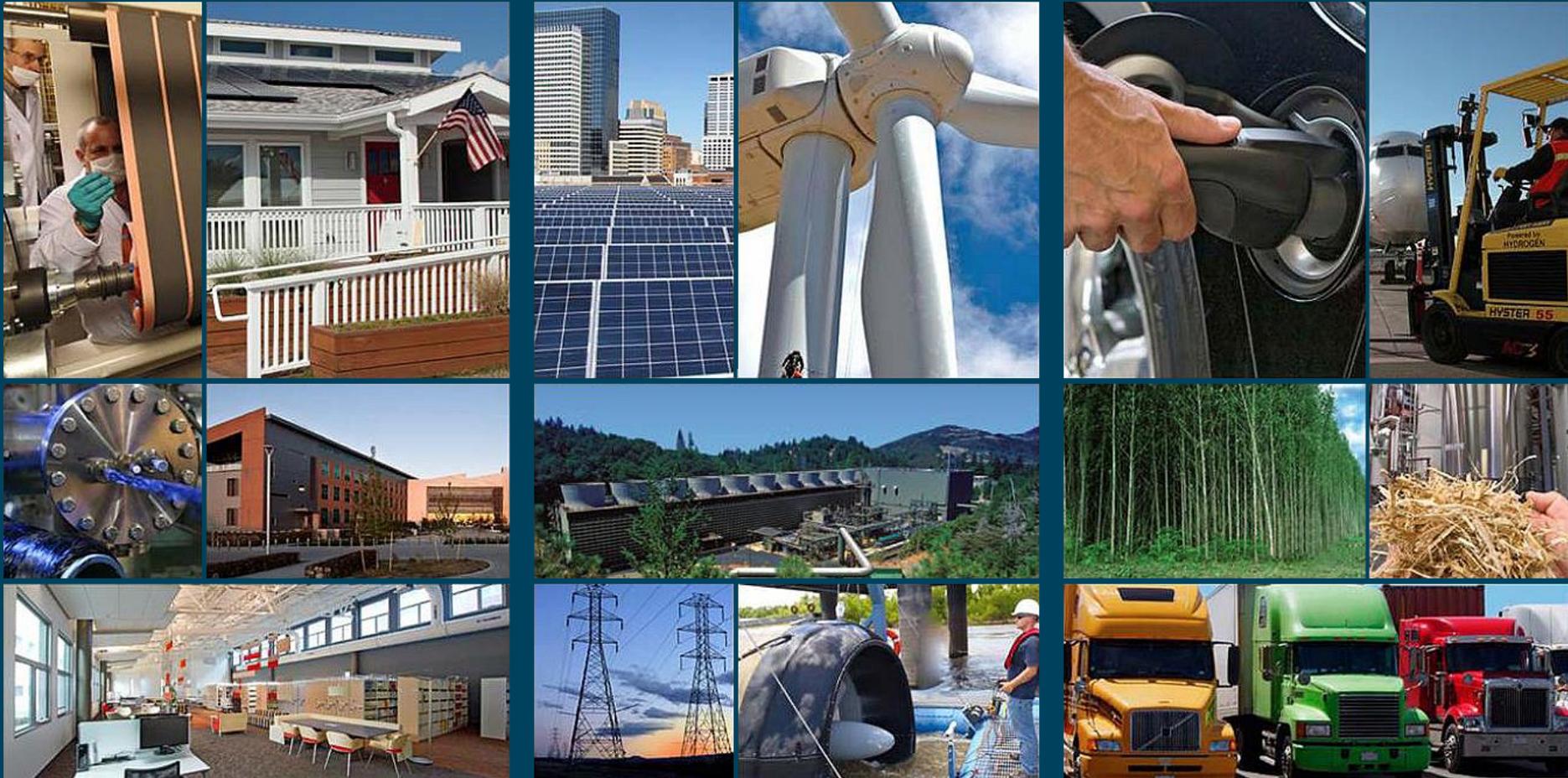


Opportunities for Connected Thermostats

2016 BTO Peer Review



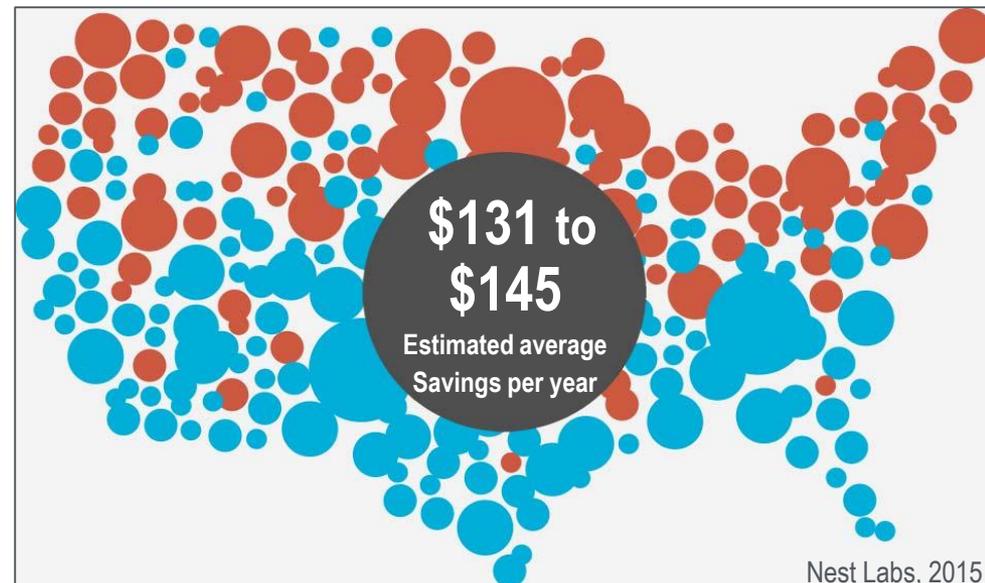
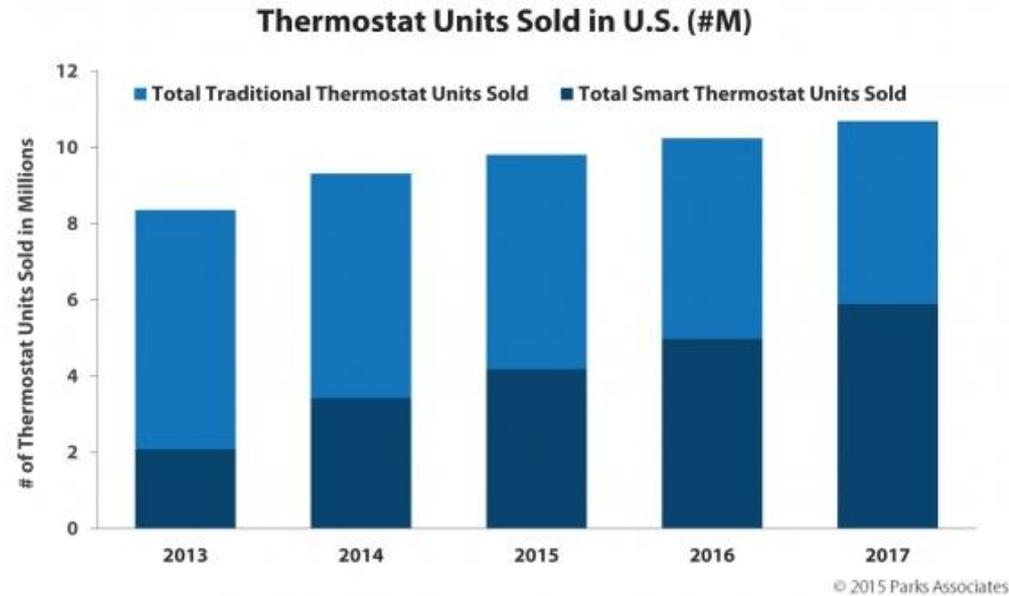
U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

Karma Sawyer
April 7, 2016

Increased Connected Thermostat Market Presence

- The number of homes with connected thermostats jumped 107% in 2014, with many experts expecting annual growth rates of over 30% (Berg Insight, 2015).
- Connected thermostats accounted for nearly 50% of all thermostats sold in the US in 2015 (Parks Associates, 2015).
- Connected thermostats reduce energy from heating and cooling by an average of 8-15% (ACEEE, 2015). Nest, a major connected thermostat brand, estimates they save homeowners \$131-\$145 per year (Nest Labs, 2015).



With Market Penetration, New Opportunities

- 25% of Americans currently control some home function with a smartphone or tablet and 22% plan to do so within the next year (Shelton Group, 2015)
- Utility programs are increasingly offering connected thermostats to their consumers, including ComEd, NV Energy, Reliant, and Austin Energy.

Definition of “Connected” for Today:

The U.S. Environmental Protection Agency has released a draft ENERGY STAR specification for “Connected Thermostats,” defining these devices according to the following capabilities:

- Ability for consumers to set and modify a schedule (i.e. programmable)
- Provide consumer’s access to information regarding HVAC energy consumption and the energy impact of their choices
- Basic demand response using open standards
- Ability to collect the data needed to demonstrate energy savings

Learn more: https://www.energystar.gov/products/spec/connected_thermostats_specification_v1_0_pd

BTO Interest in Connected Thermostats

- With increasing market penetration and a rapidly evolving market, BTO is exploring if and how its Residential Buildings Integration (RBI) and Emerging Technologies (ET) programs can engage with connected thermostat technology to support the deployment of new, additional end uses that can advance DOE goals.
- In this workshop, we hope to identify and explore the following:
 - Ideal Connected Thermostat Features/Capabilities
 - R&D Needs
 - Challenges

Please stay for the entire workshop. We promise it will be fun!